
Associations between insecure attachment and sexual experiences

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Abstract

Associations between insecure attachment and sexual experiences were tested in a sample of 328 college students. Variations in adult attachment previously have been shown to relate to sexual behaviors, with the current study extending earlier work by examining different sexual outcomes and by testing factors that may account for these relations. Avoidant attachment was expected to relate to engagement in casual sex (i.e., a greater number of sexual partners and lower percentage of partners within committed relationships), with less restrictive sexual beliefs mediating the relations. In contrast, anxious attachment was expected to relate to more unwanted but consensual sexual experiences, and to more negative affect about sexual experiences, with low self-esteem mediating the relations. Results showed some support for the hypotheses. Avoidant attachment was related to the type (but not number) of sexual partners, with sexual beliefs mediating the relations. A greater number of unwanted but consensual sexual experiences related to anxious and avoidant attachment for women and to avoidant attachment for men. Anxiety related to negative affect for women and men, and self-esteem served as a partial mediator of these relations.

For many people, emotional intimacy is an important component of physically intimate behaviors, even a necessary prerequisite in that sexual behaviors only follow once a certain level of emotional intimacy is achieved. However, people's motives for sexual behaviors vary (Cooper, Shapiro, & Powers, 1998), and particularly relevant to the present study is the degree to which individuals desire and seek out emotional intimacy during sexual encounters. Because differences in attachment involve variations in behaviors relating to intimacy, the goal of the current study is to investigate how attachment is related to several aspects of sexual experiences, and to test possible mediating variables that may explain the link between the two.

Adult attachment, romantic relationships, and intimacy

According to attachment theory, people develop beliefs about themselves and others, called working models, that come to shape their thoughts and behaviors in social interactions and relationships with others (Bowlby, 1973). Although the measurement of individual differences in adult attachment has varied among researchers, often researchers have relied on classification systems by providing individuals with attachment prototypes or Likert scales that are used to assign individuals to a particular attachment style. Specifically, Hazan and Shaver's (1987) 3-category model, which they designed to parallel different classifications originating from parent-child attachment research (Ainsworth, Blehar, Waters, & Wall, 1978), includes secure, anxious, and avoidant attachment styles. Bartholomew and Horowitz (1991), drawing from Bowlby's notion that attachment behavior stems

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from how people view themselves and others, designed a 4-category model that also captures how people vary in terms of anxiety and avoidance: secure (low anxiety, low avoidance); preoccupied (high anxiety, low avoidance); dismissing, (low anxiety, high avoidance); and fearful (high anxiety, high avoidance). The commonality shared by these typologies and other assessments of attachment is that variations in attachment can be reduced to levels on an avoidant dimension and on an anxious dimension, an argument later tested empirically by Brennan, Clark, and Shaver (1998).

Despite differences in how attachment is measured, previous research has validated adult attachment by linking it to many features of romantic relationships. In general, secure attachment is related to positive relationship outcomes, whereas insecure attachment is related to less-adaptive relationship outcomes. For example, studies have shown that securely attached individuals, as compared to insecure individuals, are more likely to be in stable, committed relationships (Hazan & Shaver, 1987; Kirkpatrick & Davis, 1994; Kirkpatrick & Hazan, 1994), and to experience greater positive affect and satisfaction within these relationships (e.g., Feeney & Noller, 1990; Hazan & Shaver, 1987). Also particularly important to the present study is how attachment style relates to variations in emotionally intimate behaviors (e.g., self-disclosure) within romantic relationships. Specifically, attachment security has been linked to high self-disclosure (Bartholomew & Horowitz, 1991; Mikulincer & Nachshon, 1991; Pistole, 1993). Although anxious attachment has also been linked to high disclosure (Bartholomew & Horowitz, 1991) and more intimate behaviors in romantic relationships (Guerrero, 1996), anxious or preoccupied individuals are inappropriate in their high amounts of self-disclosure (Bartholomew & Horowitz, 1991) and are characterized as demanding toward others to get their attachment needs met. Avoidant or dismissing individuals, in contrast, report less intimacy and do relatively less self-disclosing than others (Bartholomew &

Horowitz, 1991; Mikulincer & Erev, 1991; Mikulincer & Nachshon, 1991; Pistole, 1993). Therefore, in comparison to securely attached individuals, avoidantly attached individuals tend to minimize emotional intimacy and anxiously attached individuals are needy for emotional intimacy.

Adult attachment and sexual experiences

Considering another form of intimacy between romantic partners—sexual behaviors—previous findings for securely attached individuals coincide with the pattern that secure individuals value emotional intimacy and maintain romantic relationships. In particular, attachment security is linked to the belief that sex should be restricted to committed romantic relationships (Brennan & Shaver, 1995; Simpson & Gangestad, 1991). Similarly, secure adolescents report fewer one-night stands than do insecure individuals (Cooper, Shaver, & Collins, 1998), and college students who have never had a “hookup” (sexual encounter with a stranger or acquaintance) rate themselves higher on attachment security (Paul, McManus, & Hayes, 2000). Also, attachment security has been linked to having fewer partners (Januszewski, Turner, Guerin, & Flack (1996), as cited in Allen & Land, 1999), consistent with Belsky’s (1999) description of secure individuals’ approach to sexual relationships as “quality versus quantity.” In addition, secure individuals report more positive emotions and less negative emotions about previous sexual encounters than do insecure individuals (Brennan, Clark, et al., 1998; Tracy, Shaver, Albino, & Cooper, 2003). Thus, a coherent picture of attachment security and sexuality emerges in that secure attachment is associated with sexual experiences within committed relationships, fewer partners overall, and more positive affect and less negative affect about these sexual experiences.

In contrast, avoidant attachment is linked to two approaches to limiting intimacy in romantic encounters: avoiding sexual intercourse or engaging in casual sex

encounters. Using a sample of college men, Kalichman et al. (1993) found that men who have not had intercourse are more likely to endorse the avoidant attachment style. In addition, Cooper, Shaver, et al. (1998) found that avoidant adolescents are less likely to have had sexual intercourse than are secure or ambivalent adolescents. However, for those avoidant individuals who have had sexual intercourse, a different picture emerges. Studies have found that avoidant attachment is associated with a greater acceptance of and engagement in casual sex (Brennan & Shaver, 1995; Feeney, Noller, & Patty, 1993; Simpson & Gangestad, 1991). Similarly, avoidant adolescents are more likely to have had sexual intercourse with a stranger than are secure adolescents (Cooper, Shaver, et al., 1998), and avoidant college students are more likely to have had "hookups" than either secure or anxious individuals (Paul et al., 2000). Additionally, avoidant adolescents are less likely than secure or anxious individuals to report having sexual intercourse to express love for one's partner (Tracy et al., 2003). For sexually active avoidant individuals, the preference for casual sex partners is still consistent with their relatively low desire for emotional intimacy within relationships.

Highly anxious individuals seem to be in a dilemma; although they crave the emotional closeness of committed romantic relationships, they have trouble maintaining such relationships. Unlike avoidant individuals, they are not accepting of casual sex outside of committed relationships (Brennan & Shaver, 1995; Simpson & Gangestad, 1991). Yet their intimacy needs may make them more prone to a different, though nonetheless risky, set of sexual experiences. For example, within samples of college students, anxiety about relationships is negatively correlated with self-efficacy of sexual negotiation, meaning that highly anxious individuals report being less able to discuss contraception with partners and to resist being pressured into unwanted sex (Feeney, Peterson, Gallois, & Terry, 2000). Furthermore, individuals who are more anxious about relationships are less likely to engage in safer sex behaviors

(Feeney, Kelly, Gallois, Peterson, & Terry, 1999; Feeney et al., 2000). A sample of adolescents, anxious individuals were more likely than secure or avoidant individuals to report having sex due to fear of losing their partners (Tracy et al., 2003). Impett and Peplau (2002) examined women's reports of willingness to engage in unwanted but consensual sexual behaviors in a hypothetical scenario with their current relationship partner, with "unwanted but consensual sex" meaning that a person consents to a sexual activity but without a desire to engage in it (O'Sullivan & Allgeier, 1998). Their findings showed that anxiety is positively correlated with women's willingness to consent to unwanted sexual behaviors. Overall then, one pattern that emerges is that highly anxious individuals may be especially susceptible to peer influence due to both their high anxiety and strong desire for emotional intimacy (Cooper, Shaver, et al., 1998; Feeney et al., 1999; Impett & Peplau, 2002).

In the present study, the first goal was to examine how insecure attachment relates to sexual experiences, with the expectations that findings would be consistent with those from earlier research. However, we assessed attachment using attachment dimensions—avoidance and anxiety about close relationships—rather than a categorical model of discrete attachment styles because recent research on adult attachment methodology has shown that dimensional assessments provide more precise measurement of attachment, and that these dimensions of avoidance and anxiety, in particular, are basic factors underlying adult attachment styles (see Brennan, Clark, et al., 1998, and Fraley & Waller, 1998). Our first hypothesis was that avoidance and anxiety would relate to differences in participants' first experience of sexual intercourse. Specifically, self-ratings on avoidance are expected to be higher for those who have not had sexual intercourse, whereas self-ratings on anxiety are expected to be higher for those who had had sexual intercourse at a relatively young age. For participants who have experienced sexual

intercourse, the associations between attachment and sexual experiences also are expected to vary for avoidance and anxiety. Our second hypothesis was that individuals who are more avoidantly attached would show a pattern of "quantity over quality" (Belsky, 1999). Specifically, avoidance of romantic relationships was expected to be associated with (a) less restrictive sexual beliefs, (b) a greater number of sexual intercourse partners, and (c) a lower percentage of these partners occurring within committed relationships. Our third hypothesis was that individuals who are more anxiously attached would report more negative sexual experiences than would less anxious individuals. Specifically, anxious attachment was expected to relate to: (a) lower self-esteem, (b) engaging in a greater number of unwanted but consensual sexual experiences, and (c) more negative affect about earlier sexual experiences.

Gender and sexual experiences

In addition to attachment, gender is also related to the degree to which emotional intimacy is paired with physical intimacy in romantic relationships. Previous studies have consistently found that men report greater acceptance of casual sex than do women (e.g., Carroll, Volk, & Hyde, 1985; Simpson & Gangestad, 1991). Similarly, when men and women are asked to provide reasons for engaging in sexual intercourse, studies have shown that women report more emotional reasons (e.g., in love with partner), whereas men report more reasons related to themselves (e.g., for the experience) rather than to their feelings toward their partner (Browning, Hatfield, Kassler, & Levine, 2000; Carroll et al., 1985; Taris & Semin, 1997). Therefore, gender also needs to be considered when investigating how attachment relates to sexual experiences. For example, prior studies have found that anxiously attached women, but not men, engage in sexual intercourse at a young age, compared to either less anxiously attached women (Bogaert & Sadava, 2002)

or avoidant and secure individuals (Cooper, Shaver, et al., 1998).

Because of these gender differences, our fourth hypothesis was that associations between avoidance and sexual variables would be stronger for men, whereas associations between anxiety and sexual variables would be stronger for women. In other words, because men do not pair sexual intimacy with emotional intimacy as much as women do, and people who are high in avoidant attachment particularly dislike emotional intimacy, men high in avoidant attachment may be especially likely to adopt a casual sex orientation. Considering the reverse, that women tend to pair sexual behaviors with feelings toward partners more than men, and also because those who report high anxiety about relationships may do whatever they can to obtain or maintain romantic relationships, anxious women may be especially likely to engage in unwanted sexual behaviors or have sexual intercourse at a young age to feel close to their partners or out of fear of losing them.

Explaining associations between attachment and sexual experiences

Although sexual correlates of adult attachment have been studied in prior research, little testing has been done to determine whether additional variables are needed to account for these effects. In some cases, the effects of attachment on sexual experiences may be mediated (i.e., accounted for) by internally generated cognitions and emotions that are influenced by attachment and that, in turn, impact sexual experiences. Indeed, when explaining the sexual correlates of attachment, investigators often refer to other constructs such as sexual beliefs or self-esteem (e.g., Tracy et al., 2003). To develop more accurate theoretical models, these additional variables needed to be included so that formal tests of mediation could be performed. Also, as more is learned about why less secure people have less adaptive sexual experiences, clinical or intervention work can be targeted toward

changing these more proximal causes of problematic sexual and relational experiences. Cooper, Shaver, et al. (1998) tested whether personality characteristics could mediate relations between attachment and sexual experiences; they found that avoidant individuals' delay in having intercourse relative to secure individuals could be explained by avoidant individuals' lack of social competence and greater anxiety. They also found that avoidant and anxious individuals, because of their greater hostility compared to secure individuals, are more likely to have sex with a stranger (i.e., a one-night stand). Impett and Peplau (2002) found support for mediation in that a partial explanatory factor linking anxiety and consenting to unwanted sexual activities is a large discrepancy between the women's and their partners' relationship commitments (i.e., anxious women are more likely to engage in unwanted but consensual sexual activities when they perceive that they are more committed than their partners).

Therefore, in the present study, our second goal was to investigate potential mediating mechanisms to explain the links between attachment and sexual experiences. Not only did we expect that avoidance and anxiety would be associated with different patterns of sexual experiences, but also that different mediators would account for these associations. In particular, our fifth hypothesis was that an individual's sexual beliefs, specifically the degree of acceptance of casual sex, would mediate the relation between avoidance and casual sex behaviors. Although prior research has found that avoidance is related to both sexual beliefs and sexual behaviors, we tested whether less restrictive sexual beliefs are the explanatory factor linking avoidant attachment to casual sex behaviors. The reason, then, for avoidant attachment to be linked to the number and type of sexual intercourse partners should be because avoidant individuals can be comfortable getting physically intimate with a partner without an accompanying sense of emotional intimacy.

Our sixth hypothesis was that self-esteem is expected to mediate the association of anxiety to unwanted but consensual sex and to negative affect. Previous research has shown that individuals who report higher anxiety (e.g., ambivalent or preoccupied individuals) have lower self-esteem (e.g., Bartholomew & Horowitz, 1991; Feeney & Noller, 1990) and may seek intimacy and approval from others to feel good about themselves. Therefore, we tested the hypothesis that low self-esteem may account for the relations of more anxiously attached individuals experiencing unwanted sexual experiences and negative affect about sexual experiences.

Method

Sample

The sample consisted of 328 undergraduate students, 202 (61.6%) females and 126 (38.4%) males. Participants were from general psychology class or upper division psychology courses, and were recruited during two different semesters at a midwestern university. The age range was 18–50 years ($M = 20.5$). Most were freshmen (58.8%), and the rest were sophomores (17.7%), juniors (11.0%), and seniors (4.6%), with 7% not giving information. The ethnic distribution of the sample was 86% Caucasian, 8.2% African-American, 2.1% Asian-American, 1.8% Latino-American, .3% American-Indian, and 1.5% other. The education level of fathers and mothers was ascertained as a proxy for socioeconomic status. The modal response for both fathers and mothers was high school graduate (39.3% and 46.3%, respectively) with education levels ranging from no high school diploma to graduate school. Data were originally collected on 348, but 20 subjects were excluded from the analyses—17 due to incomplete or inaccurate data and 3 because they indicated they were homosexual and it is unclear whether their responses to sexual experience questions and relations to attachment would be comparable to those for heterosexual participants.

Measures

Attachment to romantic partners. Participants completed the Experiences in Close Relationships Questionnaire (Brennan, Clark, et al., 1998). This 36-item attachment questionnaire contains 18 items measuring avoidance and 18 items measuring anxiety about romantic relationships. Examples of avoidance items include: I am nervous when partners get too close; I usually discuss my problems and concerns with my partner (reverse scored). Examples of anxiety items include: I worry about being alone; I worry a fair amount about losing my partner. Each item was rated on a 7-point Likert scale (ranging from 1 = *disagree strongly* to 7 = *agree strongly*). The two scales, avoidance and anxiety, were created by obtaining the mean of the corresponding 18 items. For the current sample, reliabilities for the avoidance and anxiety scales were high (.93 for both scales), and consistent with earlier reliability estimates (e.g., Brennan, Clark, et al., 1998).

Self-esteem. On this 10-item measure (Rosenberg, 1965), participants rate items on a 4-point Likert scale (1 = *strongly disagree* to 4 = *strongly agree*). Sample items include: On the whole, I am satisfied with myself; At times I think I am no good at all (reverse scored). Consistent with prior use of the scale, it showed high reliability ($\alpha = .89$) within the current sample.

Sexual beliefs. To measure sexual beliefs independently of behavior, eight items that assess attitudes toward sex without commitment and casual sex were given (Snyder, Simpson, & Gangestad, 1986). Participants rate the degree to which they agree with each statement on a 9-point Likert scale (1 = *strongly disagree* to 9 = *strongly agree*), with higher scores indicating less restrictive sexual beliefs. Sample items include: Sex without love is OK; I would not have sex with someone unless I was totally and exclusively committed to that person first (reverse scored). For the current sample,

the scale demonstrated high reliability ($\alpha = .92$).

Sexual history. Participants were asked various questions about their sexual and relationship history. They were first asked whether they had ever had sexual intercourse. If yes, the next questions addressed their age of first intercourse, the number of sexual intercourse partners, and the number of partners within committed relationships. Due to the skewed distribution of participants' number of sexual partners, scores that were greater than 3 standard deviations above the mean were recoded at the score closest to within 3 standard deviations of the mean (i.e., 6 participants who reported more than 35 partners, were recoded as having 35). To compute a percentage of their sexual intercourse partners within committed relationships, the number of partners within committed relationships was divided by the total number of sexual partners.

Experience of unwanted, but consensual sexual experiences. Ten items measured how much individuals had consented to unwanted sexual activities, with some questions asking about engaging in sexual intercourse and some questions asking about engaging in any sexual behaviors. Some items were part of the Sexual Coercion Scale (Koss & Oros, 1982); other items were created by the authors. Sample items included: Have you ever engaged in sexual intercourse with someone because you felt like if you refused, your relationship could be damaged? Have you ever engaged in sexual intercourse with someone because you didn't want to upset him/her, even though you didn't want to? Participants indicated experience in a yes/no format. One item was dropped due to low reliability and because the item assessed pressure toward not using a condom instead of pressure toward engaging in unwanted sexual experiences. Items were summed to create the scale of unwanted but consensual sexual activities; therefore scores could range from 0 to 9.

The scale showed adequate reliability ($\alpha = .86$).

Negative affect about sexual experiences. The Positive and Negative Affect scale (PANAS; Watson, Clark, & Tellegen, 1988) was given to obtain a measure of affect about sexual experiences. Only the negative affect scale is relevant to the current hypotheses. Participants were asked to think about their past sexual experiences and rate the 10 negative emotions (e.g., distressed, upset) according to the degree to which they have ever felt the emotions after engaging in sexual behaviors, using a 5-point scale (1 = *very slightly or not at all* to 5 = *extremely*). With the present sample, the negative affect scale had high reliability (.91).

Results

Preliminary analyses

Preliminary analyses included tests of whether participants' gender or age or their parents' educational level related to any of the major variables (i.e., attachment, belief and sexual experience variables). The education level of participants' parents, either mother or father, was not related to any variables. Participants' age however, was correlated with anxiety, $r(326) = -.18, p < .01$; with

number of partners, $r(260) = .35, p < .001$; and with percentage of partners within committed relationships, $r(260) = -.18, p < .01$. With the results reported below, we did not control for age. (However, the pattern of findings remains the same when analyses are repeated when controlling for participant age.)

As expected, several gender differences were found. The overall percentage of the sample that reported having sexual intercourse was 79.4%. A chi-square test revealed a significant gender difference, $\chi^2(1, N = 328) = 3.91, p < .05$, in that males were more likely to report having had sexual intercourse (86.5%) than females (77.7%). To test for other gender differences, t tests were performed (see Table 1). Women and men did not differ on mean levels of avoidant or anxious attachment. Females did report lower self-esteem than males. Consistent with previous research, males indicated greater acceptance of casual sex than did females. On the behavioral indices of casual sex, men reported a greater number of sexual intercourse partners, and had a lower percentage of these partners within committed relationships, compared to women. Instances of unwanted but consensual sexual experiences were relatively low for both women and men; however, women scored significantly higher than men. Also, women reported more negative affect from their sexual experiences than did men.

Table 1. Means and t tests by participant gender

	Women		Men		t
	Mean	SD	Mean	SD	
Avoidance	2.96	1.16	2.75	1.09	1.62
Anxiety	3.84	1.27	3.79	1.27	.36
Self-esteem	3.00	.54	3.17	.53	-2.76*
Sexual beliefs	2.75	1.76	5.06	2.19	-10.00***
Age of first intercourse	16.47	1.79	16.54	1.68	-.34
Number of partners	4.36	5.53	7.86	13.78	-2.49*
% partners within relationships	.68	.33	.56	.37	2.64*
Unwanted, but consensual sex	3.26	3.01	1.56	1.95	5.54***
Negative affect	2.38	1.01	2.06	.71	3.01**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2 shows the correlations among dependent variables. As predicted, for both women and men, greater acceptance of casual sex (i.e., less restrictive sexual beliefs) was associated with a greater number of partners and lower percentage of partners within committed relationships. Additionally, as expected, lower self-esteem related to more unwanted but consensual sexual experiences and to more negative affect. Also for both women and men, a lower percentage of sexual partners within committed relationships was linked to more sexual partners and to more negative affect during sexual experiences. Some additional associations among the variables were found for women: less restrictive sexual beliefs were associated with more unwanted but consensual sexual experiences, higher self-esteem was linked to having more sexual partners, a higher number of sexual partners was linked to more unwanted but consensual sex and to more negative affect,

a lower percentage of sexual partners within committed relationships was related to more unwanted but consensual sex, and more unwanted but consensual sex was related to more negative affect.

Correlates of attachment

Tests for a relation between age of first intercourse experience and attachment.

For our first hypothesis, we expected that individuals who had not had intercourse would rate themselves higher on avoidant attachment, whereas individuals who had had intercourse at a young age would rate themselves higher on anxious attachment. The sample was divided into three groups: those who had had sexual intercourse at age 15 or younger; those who had had sexual intercourse at 16 years or older; and those who had not had sexual intercourse. Because the mean age of first intercourse experience for both women and men was

Table 2. *Correlations among dependent variables*

	Self-esteem	No. of partners	Percentage of partners	Unwanted sex	Negative affect
Women (N = 155)					
Sexual beliefs	-.03	.41***	-.52***	.20*	.12
Self-esteem		.23***	.04	-.16*	-.24**
No. of partners			-.41***	.37***	.18*
Percentage of partners within relationships				-.22*	-.19*
Unwanted but consensual sex					.48***
Men (N = 107)					
Sexual beliefs	.08	.34***	-.42***	.09	.04
Self-esteem		.09	.00	-.29**	-.28**
No. of partners			-.51***	.01	.09
Percentage of partners within relationships				-.03	-.30**
Unwanted but consensual sex					.10

* $p < .05$. ** $p < .01$. *** $p < .001$.

16 years of age, this was used as a division point to create a group of individuals with relatively early intercourse experience (i.e., those that had had intercourse before 16 years of age). Two 3 × 2 (Age of first intercourse × Gender) ANOVAs were performed with avoidant and anxious attachment as dependent variables.

In Table 3, we report the results of main effects for age of first intercourse and of interaction effects. For avoidant attachment, a significant age effect was found. A Newman Keul's post hoc test showed that both those individuals who had had intercourse at age 15 or younger and those who had not had sexual intercourse rated themselves higher on avoidant attachment than did those who had had sexual intercourse for the first time at 16 years of age or older. No gender differences emerged, either as a main effect or as an interaction with first intercourse experience.

For the 3 × 2 ANOVA using anxious attachment as the dependent variable, no significant differences emerged. However, both the main effect of first intercourse experience and its interaction with gender were marginally significant ($p < .07$). As shown with the interaction test, the means for women were in the predicted direction and consistent with prior research in that women who had had early sexual inter-

course had higher levels of anxious attachment than did those who had had first intercourse later or not at all. For men, however, the means were in a different pattern: the group of men who had not engaged in sexual intercourse had the highest levels of anxiety.

Relation of attachment to beliefs and sexual behaviors. Correlations between attachment, belief, and sexual experience variables are reported in Table 4 for the women ($N = 155$) and men ($N = 107$) who reported having experienced sexual intercourse. Our second hypothesis was that avoidant attachment would relate to acceptance of casual sex, the number of sexual partners, and the percentage of partners within committed relationships. Consistent with our hypotheses, for both women and men, less restrictive sexual beliefs (greater acceptance of casual sex) were related to avoidant attachment. Contrary to expectations, the number of partners was not related to avoidance, but results showed that, for men, fewer sexual partners related to higher levels of anxiety. As expected, a lower percentage of partners within committed relationships was related to higher avoidance.

Our third hypothesis was that anxious attachment would relate to self-esteem, unwanted but consensual sexual experiences,

Table 3. ANOVAs using age of first intercourse and gender as factors on levels of avoidant and anxious attachment (main effects of age and interaction effects are reported)

	Intercourse ≤ 15 years (<i>n</i> = 67)		Intercourse ≥ 16 years (<i>n</i> = 199)		No intercourse (<i>n</i> = 63)		<i>F</i>
	Women (<i>n</i> = 41)	Men (<i>n</i> = 26)	Women (<i>n</i> = 116)	Men (<i>n</i> = 83)	Women (<i>n</i> = 45)	Men (<i>n</i> = 18)	
Avoidance	3.15	3.07 _a	2.69 _b	2.73	3.28 _a	2.99	5.64**
Anxiety	4.21	3.97	3.71	3.72	4.06	4.42	2.70 ⁺
		3.61	3.71		3.92		2.75 ⁺

Note. Groups that do not share the same subscript are significantly different using a Newman Keul's post hoc test.

⁺ $p < .07$. ** $p < .01$.

Table 4. Correlations between avoidant and anxious attachment, belief variables, and sexual experience variables

	Women (<i>N</i> = 155)		Men (<i>N</i> = 107)	
	Avoidance	Anxiety	Avoidance	Anxiety
Sexual beliefs	.28***	-.04	.23*	.01
No. of partners	.11	-.03	.04	-.20*
Percentage within relationships	-.24**	-.04	-.26*	.05
Self-esteem	-.27***	-.45***	-.31***	-.39***
Unwanted sex	.23**	.29***	.22*	.19
Negative affect	.41***	.38***	.14	.33***

* $p < .05$. ** $p < .01$. *** $p < .001$.

and negative affect about sexual experiences. As expected, for both women and men, self-esteem was negatively correlated with anxious attachment, as well as with avoidant attachment. A greater number of unwanted but consensual sexual experiences were related to both higher anxious and avoidant attachment for women, but only to higher avoidant attachment for men. Greater negative affect about previous sexual experiences was related to both avoidant and anxious attachment for women, and to anxious attachment for men.

Gender, attachment, and sexual experiences

Our fourth hypothesis was that associations for avoidance would be stronger for men, but associations for anxiety would be stronger for women. For avoidant attachment however, findings were invariant across participant gender. For both men and women, avoidant attachment scores were higher for those who had not had sexual intercourse, and avoidant attachment was linked to acceptance of casual sex and fewer partners within committed relationships. However, for anxious attachment, the marginal finding that women's (but not men's) scores on anxiety were higher for those who had had intercourse at an early age was consistent with expectations and prior literature. Also, anxious attachment was linked to unwanted but consensual

sexual experiences for women, but not for men. For both men and women, anxious attachment correlated with negative affect about previous sexual experiences. To provide a more explicit test of the hypothesis of gender differences, we also examined whether any of these expected associations differed for men and women. However, we found that none of correlations were significantly different for women and men.

Tests of mediation

To determine whether a variable mediates the relationship between two other variables, a series of analyses must be completed. Three conditions must be met before testing for mediation. In general terms, the independent variable (e.g., avoidant attachment) would have to be related to the dependent variable (e.g., number of partners). Also, the mediating variable (e.g., sexual beliefs) would have to be related to both the independent variable and the dependent variable. As long as these three variables are correlated, mediation can be examined by analyzing the relation between the independent and dependent variable while controlling for the mediating variable. Evidence for mediation would be demonstrated if the relationship between the independent and dependent variable is significantly reduced after controlling for the mediator (Baron & Kenny, 1986).

Our fifth hypothesis, that the link between avoidant attachment and casual sex behaviors would be mediated by less restrictive sexual beliefs, could be tested for the percentage of partners within committed relationships but not for the number of sexual partners (because avoidance was not related to the number of partners). Multiple regression analyses were used to test the mediation model for avoidance and percentage of partners within committed relationships. As shown in Table 5, for women, avoidance was related to the type of sexual intercourse partners, but this relation became nonsignificant when sexual beliefs were entered on the first step. Similarly, for men, avoidance was related to the type of sexual partners, but this relation was reduced to nonsignificance after controlling for sexual beliefs. Thus, having less restrictive sexual beliefs can partially explain why avoidant attachment is associated with having more sexual partners outside the context of committed relationships.

Our sixth hypothesis, that low self-esteem would mediate the link between anxious attachment and negative sexual experiences (unwanted but consensual sex, and negative affect), could be partially tested. For unwanted but consensual sexual experiences, the mediation hypothesis was tested only for women, because, for men, anxious attachment was not related to unwanted but consensual sex. As shown in Table 6, for women, anxiety was related to

unwanted but consensual sexual intercourse. When controlling for self-esteem, the association remained significant and similar in magnitude. Therefore, other factors need to be considered in explaining the link between anxious attachment and unwanted but consensual sexual experiences.

Self-esteem could be tested as a possible mediator to explain the link between anxious attachment and negative affect for both women and men. For both women and men, anxious attachment related to negative affect from sexual experiences. When self-esteem was entered on the first step of the equations, the relationships between anxious attachment and negative affect remained significant. Even though in both cases the percentage of variance was reduced once self-esteem was controlled, these findings suggest that other factors are also needed to explain the association between anxiety and negative affect.

Discussion

This study provides some support for several hypotheses concerning how avoidant and anxious attachment are related to sexual experiences. As expected, avoidant attachment and anxious attachment show a different set of correlates, with some findings differing for women and men. In addition, the present study provides an extension of earlier work by testing mediating

Table 5. Regression analyses predicting percentage of partners within committed relationships from avoidant attachment

	Percentage of partners in relationships							
	Females				Males			
	B	SE B	β	ΔR ²	B	SE B	β	ΔR ²
Equation 1								
Step 1: Avoidance	-.07	.02	-.24**	.06**	-.09	.03	-.26**	.07**
Equation 2								
Step 1: Sexual beliefs	-.09	.01	-.52***	.27***	-.07	.02	-.41***	.17***
Step 2: Avoidance	-.03	.02	-.10	.01	-.06	.03	-.17*	.03

*p < .05. **p < .01. ***p < .001.

Table 6. Regression analyses predicting unwanted but consensual sex and negative affect from anxious attachment

	Unwanted but consensual sex							
	Females							
	B	SE B	β	ΔR^2				
Equation 1								
Step 1: Anxiety	.55	.71	.31***	.10***				
Equation 2								
Step 1: Self-esteem	-.92	.44	-.17*	.03*				
Step 2: Anxiety	.68	.20	.30***	.07***				
	Negative affect							
	Females				Males			
	B	SE B	β	ΔR^2	B	SE B	β	ΔR^2
Equation 1								
Step 1: Anxiety	.29	.06	.38***	.15***	.18	.05	.34***	.12***
Equation 2								
Step 1: Self-esteem	-.45	.14	-.25**	.06**	-.37	.12	-.28**	.08**
Step 2: Anxiety	.26	.06	.34***	.09***	.14	.05	.27**	.06**

* $p < .05$. ** $p < .01$. *** $p < .001$.

mechanisms to explain the links between attachment and sexual experiences.

Sexual correlates of attachment

Based on prior research, we expected that individuals who had not had intercourse would rate themselves higher on avoidant attachment, whereas individuals, particularly women, who had had their first intercourse experience at a young age would rate themselves higher on anxious attachment. Our findings partially supported this first hypothesis in that individuals who had not had sexual intercourse rated themselves higher on avoidant attachment than did those who had had their first sexual intercourse at 16 years of age or older. Additionally, scores on avoidance were higher for those participants who had had their first intercourse experience prior to age 16, compared to those who had first had intercourse at age 16 or older. For

anxious attachment, contrary to expectations, results indicate that participants who had had intercourse at 15 years of age or younger do not report significantly greater anxiety about close relationships.

Our second hypothesis was that avoidant attachment would be linked to acceptance of and engagement in casual sex. Although our expectations that avoidance would relate both to not engaging in sexual intercourse as well as engaging in casual sex seem conflicting, either strategy would be consistent with the goal of limiting intimacy in close relationships (the former strategy minimizes physical intimacy, whereas the latter minimizes emotional intimacy). Our results show that for both males and females higher avoidant attachment is associated with less restrictive sexual beliefs, and with one type of casual sex behavior (i.e., having a lower percentage of their sexual partners within the context of committed relationships).

Unexpectedly, for both women and men, higher avoidance is also linked to engaging in more unwanted, but consensual sexual experiences. Two post hoc explanations are offered. One explanation relies on the different mean levels of desired physical and emotional intimacy based on attachment style. Specifically, avoidant attachment is associated with lower desire for physically intimate behaviors. Brennan, Clark, et al. (1998) found that dismissing and fearful individuals (both high in avoidant attachment) are lower in their desire for affectionate behaviors (e.g., cuddling, kissing, gazing) and normative sexual behaviors (e.g., oral or manual stimulation of partner's genitals, vaginal intercourse) than are secure and preoccupied individuals. Therefore, it may be that partners of highly avoidant individuals compensate for a perceived deficit in either physical or emotional intimacy by initiating sexual behaviors. Highly avoidant individuals, who want to keep their intimacy level to a minimum, may perceive these sexual advances as excessive, but are nevertheless still willing to engage in them with their partners. This pattern may be particularly likely with avoidant individuals who have anxious partners, a combination that was found to be more prevalent in a sample of seriously dating couples than in avoidant-avoidant or anxious-anxious pairings (Kirkpatrick & Hazan, 1994).

A second possible explanation of the association between avoidant attachment and consenting to unwanted sexual activity is that highly avoidant individuals might prefer to have sex when they do not want to rather than deal with the alternative scenario if they refuse. That is, if a person refuses a partner's sexual advances, a discussion of feelings about sexual activity or possibly an argument may ensue, which highly avoidant individuals may wish to prevent due to the intimate nature of the discussion. This is consistent with Impett and Peplau's study (2002), in which avoidant women reported that they complied with unwanted sex with their current dating partners because it was easier than saying no and because of established norms to

engage in sexual activity in their relationships.

Our third hypothesis was that anxious attachment would be linked to negative sexual experiences; in particular to a greater number of unwanted but consensual sexual experiences and to more negative affect about sexual experiences. Results showed partial support for this hypothesis. For women but not for men, we found that higher anxiety is linked to more unwanted but consensual sexual experiences. This finding for anxiety is particularly telling, given the previous research finding that preoccupied and fearful individuals (who both score high on anxiety) are highest on a "desire for more touch" scale, indicating they feel touch deprived and are dissatisfied with their romantic partners' lack of interest in touching (Brennan, Wu, & Loev, 1998). The expectation that anxious attachment would be related to negative affect about previous sexual experiences was supported for women and men. Additionally, one unpredicted association with anxiety emerged for men: higher anxiety related to fewer sexual partners.

Gender, attachment and sexual experiences

For our fourth hypothesis, we expected that relations between avoidance and sexual experiences would be stronger for men, whereas relations between anxiety and sexual experiences would be stronger for women. Instead, we found no gender differences for the pattern of findings with avoidance. With anxious attachment, although anxiety is linked to unwanted but consensual sexual experiences for women but not for men, the correlations are not significantly different for women and men. For the sexual experience variables examined in the present study, associations with avoidant and anxious attachment dimensions tend to be similar across gender.

Mediation between attachment and sexual experiences

To determine whether avoidant individuals' choice in sexual partners is influenced by

their need for less emotional intimacy, for our fifth hypothesis we tested whether less restrictive sexual beliefs account for the link between avoidance and casual sex behaviors. We found that less restricted sexual beliefs partially mediate the relation between avoidant attachment and the type of sexual partner. Thus, highly avoidant adults tend to have more sexual experiences outside of the context of committed relationships, in part, probably because they do not make emotional intimacy a prerequisite for physical intimacy.

Our sixth hypothesis, that low self-esteem would explain the link between anxious attachment and unwanted but consensual sexual experiences, could be tested for women but not for men. However because this hypothesis was not supported in the mediation test, other factors may therefore explain the link between anxious attachment and unwanted but consensual sex for women. As Impett and Peplau (2002) found, women's reports of their willingness to engage in unwanted but consensual sexual activities (in a hypothetical scenario) are due to their feelings of being more committed to their current romantic partner than they think their partners are to them. Other mediating factors could be examined in future studies, such as women's concern that their partner will leave them, their perception of intimacy (or lack thereof) in their current or past romantic relationships, or their belief that engaging in unwanted sexual activities will lead to a closer relationship with their partner.

Self-esteem also was tested as a mediating factor between anxious attachment and negative affect. For both women and men, the inclusion of self-esteem in the model results in the path between anxiety and negative affect dropping slightly in magnitude, but remaining significant (the variance accounted with women dropped from 15% to 9%, and with men from 12% to 6%). Although one reason highly anxious individuals experience higher negative affect during sexual encounters is that they feel badly about themselves, other factors are needed to fully explain this link. It might be that

negative affect about previous sexual experiences stems not from low global self-worth but instead from self-evaluations concerning specific aspects of previous sexual encounters (e.g., performance anxiety, concern that their partner did not enjoy the experience, regret of engaging in sexual activities).

Limitations and future directions

Some limitations of the current study should be noted. First, due to reliance on self-report measures, there is potential for biases in reporting. Particularly with the sexual experience questions, systematic bias could be due to self-presentation effects or problems with the accuracy of recall. Response bias in sexual behavior studies has been found in both self-administered questionnaires as well as interviewer-administered questionnaires (e.g., Gribble, Miller, Rogers, & Turner, 1999; Meston, Heiman, Trapnell, & Paulhus, 1998). Recently, researchers have developed techniques (e.g., computer-assisted self-interviews) that increase feelings of anonymity and reduce reporting biases (Gribble et al., 1999), which could be useful in future studies.

A second concern is the homogenous nature of the sample. Because such a large percentage of the sample was Caucasian, hypotheses could not be tested separately by both gender and race. Prior research had found that insecure attachment is differentially linked to sexual experiences. For example, higher percentages of risky sexual behaviors relates to anxious attachment for African-American adolescents but to avoidant attachment for Caucasian adolescents (Cooper, Shaver, et al., 1998). Thus, future studies should involve more racially diverse samples.

A third weakness of the study is the correlational nature of the data, which prevents conclusions from being drawn about causation. One possibility is that being high in avoidant or anxious attachment could predispose individuals to have certain types of sexual experiences. For example, highly avoidant individuals who downplay the importance of emotional intimacy may

avoid physical intimacy or may choose to obtain physical intimacy without requiring emotional intimacy. Another possibility is that having certain types of sexual experiences could increase feelings of avoidant or anxious attachment. For example, scores on avoidant attachment are higher for individuals who have not experienced sexual intercourse compared to individuals who had their first intercourse experience after age 16. As hypothesized, it may be that highly avoidant people who are uncomfortable with a high level of intimacy within close relationships may also avoid sexual intimacy as a result. However, we must also consider the possibility that individuals who do not engage in sexual intercourse (for reasons unrelated to attachment) may be more likely to report being more avoidantly attached. Most likely, both explanations have some validity in that the relation between attachment and life experiences is bidirectional. In other words, not only is attachment associated with corresponding beliefs and behaviors, but, as Collins and Read (1994) suggested, because individuals behave in ways consistent with their working models, the resulting situations can inadvertently confirm their initial beliefs.

This area of research could benefit from the use of longitudinal study designs. Although Feeney and colleagues (Feeney et al., 1993, 1999, 2000) have assessed individuals' sexual behavior across time (6–8 weeks), studies that involve longer time periods between assessments and that control for sexual experiences before the initial assessment are needed. For example, stu-

dents could be assessed at the beginning of their first year of college and again at the end of the year, controlling for sexual experiences prior to college, so that attachment assessed at the first time point can be used to predict subsequent sexual experiences. By investigating attachment and sexual experiences across time, more definitive, directional conclusions could be made for the mediation models tested in the present study.

Overall, this study offers new insight into how attachment is linked to sexual experiences of young adults by testing for links with different sexual experiences and testing mediators to explain the links with attachment. Another strength of the study is the use of avoidant and anxious scales, which allow attachment dimensions to be assessed, rather than categorical measures that force participants into a discrete attachment style. Within this study, although many hypotheses were supported, it should be noted that attachment explained a relatively low percentage of the variance in sexual experiences (ranging from 6 to 15%). Therefore, because many other factors contribute to people's sexual experiences, researchers investigating attachment and sexual experiences should study attachment within a broader set of sociocultural factors (e.g., religious beliefs, gender socialization). Also, future studies could extend this study by employing longitudinal designs, obtaining more diverse samples, and by testing other variables that may explain associations between attachment and sexual experiences.

References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.
- Allen, J. P., & Land, D. (1999). Attachment in adolescence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical applications* (pp. 319–335). New York: Guilford.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226–244.
- Belsky, J. (1999). Modern evolutionary theory and patterns of attachment. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical applications* (pp. 141–161). New York: Guilford.

- Bogaert, A. F., & Sadava, S. (2002). Adult attachment and sexual behavior. *Personal Relationships, 9*, 191–204.
- Bowlby, J. (1973). *Attachment and loss: Separation, anxiety and anger*. New York: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford.
- Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21*, 267–283.
- Brennan, K. A., Wu, S., & Loev, J. (1998). Adult romantic attachment and individual differences in attitudes toward physical contact in the context of adult romantic relationships. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 248–256). New York: Guilford.
- Browning, J. R., Hatfield, E., Kassler, D., & Levine, T. (2000). Sexual motives, gender and sexual behavior. *Archives of Sexual Behavior, 29*, 135–153.
- Carroll, J. L., Volk, K. D., & Hyde, J. S. (1985). Differences between males and females motives for engaging in sexual intercourse. *Archives of Sexual Behavior, 14*, 131–139.
- Collins, N. L., & Read, S. J. (1994). Cognitive representations of attachment: the structure and function of working models. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood. Advances in personal relationships*, Vol. 5, 53–90. London: Kingsley.
- Cooper, M. L., Shapiro, C. M., & Powers, A. M. (1998). Motivations for sex and risky sexual behavior among adolescents and young adults: A functional perspective. *Journal of Personality and Social Psychology, 75*, 1528–1558.
- Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*, 1380–1397.
- Feeney, J. A., Kelly, L., Gallois, C., Peterson, C., & Terry, D. J. (1999). Attachment style, assertive communication and safer-sex behavior. *Journal of Applied Social Psychology, 29*, 1964–1983.
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology, 58*, 281–291.
- Feeney, J. A., Noller, P., & Patty, J. (1993). Adolescents' interaction with the opposite sex: Influences of attachment style and gender. *Journal of Adolescence, 16*, 169–186.
- Feeney, J. A., Peterson, C., Gallois, C., & Terry, D. J. (2000). Attachment style as a predictor of sexual attitudes and behavior in late adolescence. *Psychology and Health, 14*, 1105–1122.
- Fraley, R. C., & Waller, N. G. (1998). Adult attachment patterns: A test of the typological model. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 77–114). New York: Guilford.
- Gribble, J. N., Miller, H. G., Rogers, S. M., & Turner, C. F. (1999). Interview mode and measurement of sexual behaviors: Methodological issues. *The Journal of Sex Research, 36*, 16–24.
- Guerrero, L. K. (1996). Attachment-style differences in intimacy and involvement: A test of the four-category model. *Communication Monographs, 63*, 269–292.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511–524.
- Impett, E. A., & Peplau, L. A. (2002). Why some women consent to unwanted sex with a dating partner: Insights from attachment theory. *Psychology of Women Quarterly, 26*, 360–370.
- Kalichman, S. C., Sarwer, D. B., Johnson, J. R., Ali, S. A., Early, J., & Tuten, J. T. (1993). Sexually coercive behavior and love styles: A replication and extension. *Journal of Psychology and Human Sexuality, 6*, 1993.
- Kirkpatrick, L. A., & Davis, K. E. (1994). Attachment style, gender, and relationship stability: A longitudinal analysis. *Journal of Personality and Social Psychology, 66*, 502–512.
- Kirkpatrick, L. A., & Hazan, C. (1994). Attachment styles and close relationships: A four-year prospective study. *Personal Relationships, 1*, 123–142.
- Koss, M. P., & Oros, C. J. (1982). Sexual experiences survey: A research instrument investigating sexual aggression and victimization. *Journal of Consulting and Clinical Psychology, 50*, 455–457.
- Meston, C. M., Heiman, J. R., Trappell, P. D., & Paulhus, D. L. (1998). Socially desirable responding and sexuality self-reports. *The Journal of Sex Research, 35*, 148–157.
- Mikulincer, M., & Erev, I. (1991). Attachment style and the structure of romantic love. *British Journal of Social Psychology, 30*, 273–291.
- Mikulincer, M., & Nachshon, O. (1991). Attachment styles and patterns of self-disclosure. *Journal of Personality and Social Psychology, 61*, 321–331.
- O'Sullivan, L. F., & Allgeier, E. R. (1998). Feigning sexual desire: Consenting to unwanted sexual activity in heterosexual dating relationships. *The Journal of Sex Research, 35*, 234–243.
- Paul, E. L., McManus, B., & Hayes, A. (2000). "Hookups": characteristics and correlates of college students' spontaneous and anonymous sexual experiences. *The Journal of Sex Research, 37*, 76–88.
- Pistole, C. M. (1993). Attachment relationships: Self-disclosure and trust. *Journal of Mental Health Counseling, 15*, 94–106.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59*, 971–980.
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*, 870–883.
- Snyder, M. J., Simpson, J. A., & Gangestad, S. (1986). Personality and sexual relations. *Journal of Personality and Social Psychology, 51*, 181–190.
- Taris, T. W., & Semin, G. R. (1997). Gender as a moderator of the effects of the love motive and relational context on sexual experience. *Archives of Sexual Behavior, 26*, 159–180.

- Tracy, J. L., Shaver, P. R., Albino, A. W., & Cooper, M. L. (2003). Attachment styles and adolescent sexuality. In P. Florsheim (Ed.), *Adolescent romance and sexual behavior: Theory, research, and practical implications* (pp. 137–159). Mahwah, NJ: Erlbaum.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063–1070.

